

WHAT IS CLAIMED IS:

1. A method of identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual, the method comprising the steps of:

- (a) immunoreacting with a serum sample derived from the individual at least one peptide representing at least one epitope derived from an endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of the neurodegenerative disorder, said at least one peptide being selected such that said at least one antibody being capable of immunobinding with said at least one peptide; and
- (b) detecting a presence, absence or degree of said immunobinding to thereby identify said existence, non-existence, type or state of the neurodegenerative disorder.

2. The method of claim 1, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M, Tau and B-amyloid protein.

3. The method of claim 1, wherein said at least one epitope is a continuous epitope.

4. The method of claim 1, wherein said at least one epitope a discontinuous epitope.

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5. The method of claim 1, wherein said at least one peptide includes a number of amino acids selected from the group consisting of at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, at least thirteen, at least fourteen, at least fifteen, at least sixteen, at least seventeen, between seventeen and twenty five and between twenty five and at least thirty.

6. The method of claim 1, wherein said at least one peptide includes a plurality of peptides and further wherein said at least one antibody includes a plurality of antibodies, whereas said plurality of peptides are selected such that said plurality of antibodies are capable of respectively immunobinding with said plurality of peptides.

7. The method of claim 6, wherein said plurality of peptides are bound in a regiospecific manner to a solid support, such that detecting a presence, absence or degree of said immunobinding to thereby identify said existence, non-existence, type or state of the neurodegenerative disorder is effected by reacting said serum sample with said solid support, identifying reactive peptides according to their regiospecificity and associating said reactive peptides with said existence, non-existence, type or state of the neurodegenerative disorder.

8. The method of claim 1, wherein said at least one peptide includes at least one phospho amino acid.

9. The method of claim 8, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

10. The method of claim 9, wherein said phosphoserine forms a part of a sequence motif as set forth in SEQ ID NO:2.

11. The method of claim 9, wherein said phosphoserine forms a part of a sequence motif selected from the group consisting of sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

12. The method of claim 11, wherein said at least one peptide includes an amino acid sequence selected from the group consisting of SEQ ID NOs:5-76.

13. The method of claim 11, wherein said at least one peptide includes an amino acid sequence as set forth in SEQ ID NO:23.

14. The method of claim 1, wherein the neurodegenerative disorder is associated with progressive loss of cognitive functions.

15. The method of claim 1, wherein the neurodegenerative disorder is associated with progressive loss of control of motoric functions.

16. The method of claim 1, wherein the neurodegenerative disorder is associated with progressive loss of motoric functions.

17. The method of claim 1, wherein the neurodegenerative disorder is selected from the group consisting of Alzheimer's disease, Multi-infarct Dementia (MID), Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-

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Straussler-Scheinker disease with tangles, Multiple sclerosis, ALS, TIA and stroke.

18. The method of claim 1, wherein said at least one peptide includes an immobilizing moiety covalently attached thereto.

19. The method of claim 1, wherein said immobilizing moiety is a member of a binding pair.

20. The method of claim 19, wherein said member of said binding pair is selected from the group consisting of biotin, avidin, streptavidin, an antibody, a hapten, a receptor, a ligand, Ni and NTA.

21. The method of claim 22, wherein said immobilizing moiety is covalently attached to a terminal of said at least one peptide, said terminal is selected from the group consisting of a carboxy terminal and an amino terminal.

22. The method of claim 1, wherein at least one amino acid of said at least one peptide is a modified amino acid.

23. A proteinaceous substance useful for identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual, the proteinaceous substance comprising at least one peptide representing at least one epitope derived from an endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of the neurodegenerative disorder, said at least one peptide being selected such that said at least one antibody being capable of immunobinding said at least one peptide.

24. The proteinaceous substance of claim 23, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M, Tau and B-amyloid protein.

25. The proteinaceous substance of claim 23, wherein said at least one epitope is a continuous epitope.

26. The proteinaceous substance of claim 23, wherein said at least one epitope a discontinuous epitope.

27. The proteinaceous substance of claim 23, wherein said at least one peptide includes a number of amino acids selected from the group consisting of at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, at least thirteen, at least fourteen, at least fifteen, at least sixteen and at least seventeen, between seventeen and twenty five and between twenty five and at least thirty.

28. The proteinaceous substance of claim 23, wherein said at least one peptide includes a plurality of peptides and further wherein said at least one antibody includes a plurality of antibodies, whereas said plurality of peptides are selected such that said plurality of antibodies are capable of respectively immunobinding with said plurality of peptides.

29. The proteinaceous substance of claim 23, wherein said at least one peptide includes at least one phospho amino acid.

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30. The proteinaceous substance of claim 29, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

31. The proteinaceous substance of claim 30, wherein said phosphoserine forms a part of a sequence motif as set forth in SEQ ID NO:2.

32. The proteinaceous substance of claim 30, wherein said phosphoserine forms a part of a sequence motif selected from the group consisting of sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

33. The proteinaceous substance of claim 23, wherein said at least one peptide includes an amino acid sequence selected from the group consisting of SEQ ID NOs:5-76.

34. The proteinaceous substance of claim 23, wherein said at least one peptide includes an amino acid sequence as set forth in SEQ ID NO:23.

35. The proteinaceous substance of claim 23, wherein the neurodegenerative disorder is associated with progressive loss of cognitive functions.

36. The proteinaceous substance of claim 23, wherein the neurodegenerative disorder is associated with progressive loss of control of motoric functions.

37. The proteinaceous substance of claim 23, wherein the neurodegenerative disorder is associated with progressive loss of motoric functions.

38. The proteinaceous substance of claim 23, wherein the neurodegenerative disorder is selected from the group consisting of Alzheimer's disease, Multi-infarct Dementia (MID), Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-Straussler-Scheinker disease with tangles, Multiple sclerosis, ALS, TIA and stroke.

39. The proteinaceous substance of claim 23, wherein said at least one peptide includes an immobilizing moiety covalently attached thereto.

40. The proteinaceous substance of claim 23, wherein said immobilizing moiety is a member of a binding pair.

41. The proteinaceous substance of claim 40, wherein said member of a binding pair is selected from the group consisting of biotin, avidin, streptavidin, an antibody, a hapten, a receptor, a ligand, Ni and NTA.

42. The proteinaceous substance of claim 40, wherein said immobilizing moiety is covalently attached to a terminal of said at least one peptide, said terminal is selected from the group consisting of a carboxy terminal and an amino terminal.

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43. The proteinaceous substance of claim 23, wherein at least one amino acid of said at least one peptide is a modified amino acid.

44. The proteinaceous substance of claim 23, further comprising a display polypeptide covalently attached to said at least one peptide at a terminal thereof, said terminal is selected from the group consisting of an amino terminal and a carboxy terminal.

45. The proteinaceous substance of claim 44, wherein said display polypeptide forms a part of a display system selected from the group consisting of a phage display system and a bacterial display system.

46. A filter for removing at least one antibody generated against an endogenous protein associated with the onset or progression of the neurodegenerative disorder from the blood of a patient suffering from the neurodegenerative disorder, said filter comprising a solid support and the proteinaceous substance of claim 23 attached thereto such that filtering the blood of a patient suffering from the neurodegenerative disorder through said filter substantially removes the at least one antibody therefrom.

47. An extracorporeal device for removing at least one antibody generated against an endogenous protein associated with the onset or progression of a neurodegenerative disorder from the blood of a patient suffering from the neurodegenerative disorder, the extracorporeal device comprising :

- (a) the filter of claim 46; and
- (b) a pump for circulating the blood of the patient suffering from the neurodegenerative disorder through said filter,

such that the at least one antibody is substantially removed from the blood of a patient.

48. A peptide comprising an amino acid sequence representing at least one epitope of an endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of a neurodegenerative disorder.

49. The peptide of claim 48, wherein said epitope is selected from the group consisting of a continuous epitope and a discontinuous epitope.

50. The peptide of claim 48, wherein said amino acid sequence includes at least one phospho amino acid.

51. The peptide of claim 50, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

52. The peptide of claim 48, wherein said amino acid sequence includes at least one modified amino acid.

53. The peptide of claim 48, wherein said endogenous protein is selected from the group consisting of NF-H NF-M and Tau.

54. The peptide of claim 48, selected from the group consisting of SEQ ID NOs:5-76.

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55. A method of identifying peptides useful for identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual, the method comprising the steps of:

- (a) preparing a plurality of peptides corresponding to a plurality of continuous or discontinuous sequences derived from an endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of the neurodegenerative disorder;
- (b) screening said plurality of peptides for at least one peptide being immunoreactive with a serum derived from at least one patient suffering from the neurodegenerative disorder, thereby identifying peptides useful of identifying an existence, non-existence, type or state of the neurodegenerative disorder

56. The method of claim 55, wherein said continuous or discontinuous sequences derived from said endogenous protein include at least one phospho amino acid.

57. The method of claim 56, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

58. The method of claim 55, wherein said continuous or discontinuous sequences derived from said endogenous protein include at least one repeat of the sequence set forth by SEQ ID NO:2.

59. The method of claim 55, wherein said continuous or discontinuous sequences derived from said endogenous protein include

at least one sequence motif selected from the group consisting of SEQ ID NOs:1, 3 and 4.

60. The method of claim 55, wherein said step of preparing said plurality of peptides includes covalently attaching to each of said plurality of peptides at least one immobilizing moiety.

61. The method of claim 60, wherein said immobilizing moiety is a member of a binding pair.

62. The method of claim 61, wherein said member of said binding pair is selected from the group consisting of biotin, avidin, streptavidin, an antibody, a hapten, a receptor, a ligand, Ni and NTA.

63. The method of claim 61, wherein said immobilizing moiety is covalently attached to a terminal of said at least one peptide, said terminal is selected from the group consisting of a carboxy terminal and an amino terminal.

64. The method of claim 61, wherein said at least one peptide includes at least one modified amino acid.

65. A method of removing at least one antibody generated against an endogenous protein associated with the onset or progression of a neurodegenerative disorder from the blood of a patient suffering from the neurodegenerative disorder, the method comprising the step of circulating the blood of the patient through an extracorporeal device including at least one peptide representing at least one epitope derived from an endogenous protein and capable of immunobinding at least one

antibody recognizing said endogenous protein and which is associated with said neurodegenerative disorder, said extracorporeal device is configured such that when the blood of the patient is circulated therethrough said at least one peptide immunobinds said at least one antibody to thereby substantially remove antibodies associated with the neurodegenerative disorder from the blood of the patient.

66. The method of claim 65, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M, Tau and B-amyloid protein.

67. The method of claim 65, wherein said at least one epitope is a continuous epitope.

68. The method of claim 65, wherein said at least one epitope a discontinuous epitope.

69. The method of claim 65, wherein said at least one peptide includes a number of amino acids selected from the group consisting of at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, at least thirteen, at least fourteen, at least fifteen, at least sixteen and at least seventeen, between seventeen and twenty five and between twenty five and at least thirty.

70. The method of claim 65, wherein said at least one peptide includes a plurality of peptides and further wherein said at least one antibody includes a plurality of antibodies, whereas said plurality of peptides are selected such that said plurality of antibodies are capable of respectively immunobinding with said plurality of peptides.

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71. The method of claim 65, wherein said at least one peptide includes at least one phospho amino acid.

72. The method of claim 71, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

73. The method of claim 72, wherein said phosphoserine forms a part of a sequence motif as set forth in SEQ ID NO:2.

74. The method of claim 72, wherein said phosphoserine forms a part of a sequence motif selected from the group consisting of sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

75. The method of claim 73, wherein said at least one peptide includes an amino acid sequence selected from the group consisting of SEQ ID NOs:5-76.

76. The method of claim 73, wherein said at least one peptide includes an amino acid sequence as set forth in SEQ ID NO:23.

77. The method of claim 65, wherein the neurodegenerative disorder is associated with progressive loss of cognitive functions.

78. The method of claim 65, wherein the neurodegenerative disorder is associated with progressive loss of control of motoric functions.

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79. The method of claim 65, wherein the neurodegenerative disorder is associated with progressive loss of motoric functions.

80. The method of claim 65, wherein the neurodegenerative disorder is selected from the group consisting of Alzheimer's disease, Multi-infarct Dementia (MID), Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-Straussler-Scheinker disease with tangles, Multiple sclerosis, ALS, TIA and stroke.

81. The method of claim 65, wherein said at least one peptide includes an immobilizing moiety covalently attached thereto.

82. The method of claim 81, wherein said immobilizing moiety is a member of a binding pair.

83. The method of claim 82, wherein said member of a binding pair is selected from the group consisting of biotin, avidin, streptavidin, an antibody, a hapten, a receptor, a ligand, Ni and NTA.

84. The method of claim 81, wherein said immobilizing moiety is covalently attached to a terminal of said at least one peptide, said terminal is selected from the group consisting of a carboxy terminal and an amino terminal.

85. The method of claim 65, wherein at least one amino acid of said at least one peptide is a modified amino acid.

86. the method of claim 65, wherein the extracorporeal device includes a pump for circulating the blood of the patient through the extracorporeal device.

87. An array device useful for identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual, the array device comprising a plurality of peptides each being attached to a solid support in a regiospecific manner, said plurality of peptides representing epitopes derived from at least one endogenous protein to which a plurality of antibodies are produced *in vivo* at onset or during progression of the neurodegenerative disorder, each of said plurality of peptides being selected such that each of said plurality of antibodies being capable of immunobinding said at least each of said plurality of peptides.

88. The array device of claim 87, wherein said at least one endogenous protein is selected from the group consisting of NF-H, NF-M, Tau and B-amyloid protein.

89. The array device of claim 87, wherein said at least one epitope is a continuous epitope.

90. The array device of claim 87, wherein said at least one epitope a discontinuous epitope.

91. The array device of claim 87, wherein said each of a plurality of peptides includes a number of amino acids selected from the group consisting of at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, at least thirteen, at

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least fourteen, at least fifteen, at least sixteen and at least seventeen, between seventeen and twenty five and between twenty five and at least thirty.

92. The array device of claim 87, wherein each of said plurality of peptides includes at least one phospho amino acid.

93. The array device of claim 92, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

94. The array of claim 93, wherein said phosphoserine forms a part of a sequence motif as set forth in SEQ ID NO:2.

95. The array of claim 93, wherein said phosphoserine forms a part of a sequence motif selected from the group consisting of sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

96. The array device of claim 94, wherein each of said plurality of peptides includes an amino acid sequence selected from the group consisting of SEQ ID NOs:5-76.

97. The array device of claim 94, wherein each of said plurality of peptides is of an amino acid sequence selected from the group consisting of SEQ ID NOs: 21, 29, 32, 36, 38, 42, 44, 46, 54, 59, 62, 68, 70, 77 and 78.

98. The array device of claim 94, wherein each of said plurality of peptides is of an amino acid sequence selected from the group consisting of SEQ ID NOs: 21, 32, 42, 54, 59, 62 and 77.

99. The array device of claim 87, wherein the neurodegenerative disorder is associated with progressive loss of cognitive functions.

100. The array device of claim 87, wherein the neurodegenerative disorder is associated with progressive loss of control of motoric functions.

101. The array device of claim 87, wherein the neurodegenerative disorder is associated with progressive loss of motoric functions.

102. The array device of claim 87, wherein the neurodegenerative disorder is selected from the group consisting of Alzheimer's disease, Multi-infarct Dementia (MID), Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-Straussler-Scheinker disease with tangles, Multiple sclerosis, ALS, TIA and stroke.

103. The array device of claim 87, wherein each of said plurality of peptides is attached to the solid support via an immobilizer.

104. The array device of claim 87, wherein said immobilizer includes a first member and a second member of a binding pair.

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105. The array of claim 104, wherein said first member is covalently attached to each of said plurality of peptides and said second member is covalently attached to said solid support.

106. The array device of claim 104, wherein said first and second members of said binding pair are each independently selected from the group consisting of biotin, avidin, streptavidin, an antibody, a hapten, a receptor, a ligand, Ni and NTA.

107. The array device of claim 104, wherein said first member is a moiety covalently attached to a terminal of said each of said plurality of peptides, said terminal is selected from the group consisting of a carboxy terminal and an amino terminal.

108. The array device of claim 87, wherein at least one amino acid of said at least one peptide is a modified amino acid.

109. A method of generating a peptide combination useful for identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual, the method comprising the steps of:

- (a) identifying at least one endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of the neurodegenerative disorder;
- (b) generating a plurality of peptides corresponding to said at least one endogenous protein;
- (c) reacting specific subsets of said plurality of peptide with serum obtained from:

- (i) a first population of individuals suffering from the neurodegenerative disorder; and
- (ii) a second population of individuals not suffering from the neurodegenerative disorder; and
- (d) identifying specific subset or subsets of the plurality of peptides being immunoreactive with a high number of said individuals of said first population and a low number of said individuals of said second population to thereby generate the peptide combination useful for identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual.

110. the method of claim 109, wherein said plurality of peptides are overlapping peptides.

111. The method of claim 109, wherein each of said p[plurality of peptides includes a number of amino acids selected from the group consisting of at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, at least thirteen, at least fourteen, at least fifteen, at least sixteen, at least seventeen, between seventeen and twenty five and between twenty five and at least thirty.

112. The method of claim 109, wherein said plurality of peptides are bound in a regiospecific manner to a solid support, such that reactive peptides are identifiable according to their regiospecificity.

113. The method of claim 109, wherein at least a portion of said plurality of peptides each include at least one phospho amino acid.

114. The method of claim 109, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

115. A method of identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual, the method comprising the steps of:

- (a) immunoreacting a serum sample derived from the individual with a plurality of peptides, each peptide of said plurality of peptides representing at least one epitope derived from an endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of the neurodegenerative disorder; and
- (b) detecting a presence, absence or degree of antibody binding to each of said plurality of peptides to thereby generate an immunobinding profile for said serum sample derived from the individual, said profile being indicative of the existence, non-existence, type or state of the neurodegenerative disorder.

116. The method of claim 115, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M, Tau and B-amyloid protein.

117. The method of claim 115, wherein the neurodegenerative disorder is selected from the group consisting of Alzheimer's disease, Multi-infarct Dementia (MID), Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-Straussler-Scheinker disease with tangles, Multiple sclerosis, ALS, TIA

and stroke.

118. The method of claim 115, wherein said plurality of peptides are bound in a regiospecific manner to a solid support, such that said immunobinding profile is generated by identifying reactive peptides of said plurality of peptides according to their regiospecificity.

119. The method of claim 115, wherein each peptide of said plurality of peptides includes at least one phospho amino acid.

120. The method of claim 119, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

121. The method of claim 120, wherein said phosphoserine forms a part of a sequence motif as set forth in SEQ ID NO:2.

122. The method of claim 120, wherein said phosphoserine forms a part of a sequence motif selected from the group consisting of sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

123. The method of claim 115, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs:5-76.

124. The method of claim 115, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 29, 32, 36, 38, 42, 44, 46, 54, 59, 62, 68, 70, 77 and 78.

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125. The method of claim 115, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 32, 42, 54, 59, 62 and 77.

126. The method of claim 115, wherein the neurodegenerative disorder is associated with progressive loss of cognitive functions.

127. The method of claim 115, wherein the neurodegenerative disorder is associated with progressive loss of control of motoric functions.

128. The method of claim 115, wherein the neurodegenerative disorder is associated with progressive loss of motoric functions.

129. The method of claim 115, wherein each peptide of said plurality of peptides includes an immobilizing moiety covalently attached thereto.

130. A method of predicting the presence of a neurodegenerative disorder in a subject, the method comprising the steps of:

- (a) immunoreacting a sample derived from the subject with a plurality of peptides so as to form a complex, wherein each peptide of said plurality of peptides represents at least one epitope derived from an endogenous protein to which at least one antibody is produced during progression of the neurodegenerative disorder;
- (b) detecting said complex, thereby generating an immunobinding profile for said sample derived from the

subject; and

- (c) comparing said immunoblotting profile of said sample to a normative value thereby predicting the presence of the neurodegenerative disorder in the subject.

131. The method of claim 130, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M, and Tau.

132. The method of claim 130, wherein the neurodegenerative disorder is selected from the group consisting of, Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-Straussler-Scheinker disease with tangles, Multiple sclerosis, and ALS.

133. The method of claim 130, wherein the neurodegenerative disease is Alzheimer's disease.

134. The method of claim 130, wherein said sample is a blood sample.

135. The method of claim 130, wherein each peptide of said plurality of peptides includes at least one phospho amino acid.

136. The method of claim 135, wherein said at least one phospho amino acid is phosphoserine, phosphothreonine or phosphotyrosine.

137. The method of claim 136, wherein said phosphoserine is a part of at least one repeated sequence motif as set forth in SEQ ID NO:2.

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138. The method of claim 136, wherein said phosphoserine is a part of at least one repeated sequence motif selected the sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

139. The method of claim 130, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs:5-78.

140. The method of claim 130, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 29, 32, 36, 38, 42, 44, 46, 54, 59, 62, 68, 70, 77 and 78.

141. The method of claim 130, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 32, 42, 54, 59, 62 and 77.

142. The method of claim 130, wherein each peptide of said plurality of peptides includes an immobilizing moiety covalently attached thereto.

143. A method of predicting the state of a neurodegenerative disorder in a subject, the method comprising the steps of:

- (a) immunoreacting a sample derived from the subject with a plurality of peptides so as to form a complex so as to form a complex, wherein each peptide of said plurality of peptides represents at least one epitope derived from an endogenous protein to which at least one antibody is produced during progression of the neurodegenerative disorder;
- (b) detecting said complex, thereby generating an immunobinding profile for said sample derived from the

subject; and

- (c) comparing said immunobinding profile of said sample to a normative value thereby predicting the state of the neurodegenerative disorder in the subject.

144. The method of claim 143, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M, and Tau.

145. The method of claim 143, wherein the neurodegenerative disorder is selected from the group consisting of, Pick's disease, Frontotemporal dementias, Dementia pugilistica, vascular dementia, Parkinson's disease, Gerstmann-Straussler-Scheinker disease with tangles, Multiple sclerosis, and ALS.

146. The method of claim 143, wherein the neurodegenerative disease is Alzheimer's disease.

147. The method of claim 143, wherein said sample is a blood sample.

148. The method of claim 143, wherein each peptide of said plurality of peptides includes at least one phospho amino acid.

149. The method of claim 148, wherein said at least one phospho amino acid is phosphoserine, phosphothreonine or phosphotyrosine.

150. The method of claim 149, wherein said phosphoserine is a part of at least one repeated sequence motif as set forth in SEQ ID NO:2.

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151. The method of claim 149, wherein said phosphoserine is a part of at least one repeated sequence motif selected the sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

152. The method of claim 143, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs:5-78.

153. The method of claim 143, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 29, 32, 36, 38, 42, 44, 46, 54, 59, 62, 68, 70, 77 and 78.

154. The method of claim 143, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 32, 42, 54, 59, 62 and 77.

155. The method of claim 143, wherein each peptide of said plurality of peptides includes an immobilizing moiety covalently attached thereto.

156. A method of predicting the presence of an ischemic disorder in a subject, comprising the steps of:

- (a) immunoreacting a sample derived from the subject with a plurality of peptides so as to form a complex, wherein each peptide of said plurality of peptides represents at least one epitope derived from an endogenous protein to which at least one antibody is produced during progression during progression of the ischemic disorder

- (b) detecting said complex, thereby generating an immunobinding profile for said sample derived from the subject; and
- (c) comparing said immunobinding profile of said sample to a normative value thereby of predicting the presence of an ischemic disorder in a subject.

157. The method of claim 156, wherein said endogenous protein is selected from the group consisting of NF-H, NF-M and Tau.

158. The method of claim 156, wherein the ischemic disorder is selected from the group consisting of stroke, Transient Ischemic Attack (TIA) and Multiple Infarct Dementia (MID).

159. The method of claim 156, wherein each peptide of said plurality of peptides includes at least one phospho amino acid.

160. The method of claim 159, wherein said at least one phospho amino acid is selected from the group consisting of phosphoserine, phosphothreonine and phosphotyrosine.

161. The method of claim 160, wherein said phosphoserine is a part of at least one repeated sequence motif as set forth in SEQ ID NO:2.

162. The method of claim 160, wherein said phosphoserine is a part of at least one repeated sequence motif selected the sequence motives as set forth in SEQ ID NOs: 3, 4 and 5.

164. The method of claim 156, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 29, 32, 36, 38, 42, 44, 46, 54, 59, 62, 68, 70, 77 and 78.

165. The method of claim 156, wherein said plurality of peptides are selected from the group of peptides set forth in SEQ ID NOs: 21, 32, 42, 54, 59, 62 and 77.

166. The method of claim 156, wherein each peptide of said plurality of peptides includes an immobilizing moiety covalently attached thereto.